



Machining

On the Safe Side with Safe-Lock™

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In the manufacturing world today, it has become critical to run CNC machines at faster speeds and feeds in order to be globally competitive. In addition, many are machining more difficult-to-machine materials and are utilizing modern high-helix cutting tool technologies and programming techniques. However, because of these increases in speeds and feeds, new cutting tool designs, new programming techniques and machining difficult materials, most friction-based tool holding systems allow the cutting tool to micro creep, which is when the cutting tool moves slightly and can pull out of the holder. Prior to the Safe-Lock™ creation, the only way to try to solve this problem was using a side lock (or Weldon flat) cutting tool and tool holder. Due to the side clamping of the Weldon system, the tool is pushed off center, which causes reduced tool life, poor runout accuracy of up to 0.05 mm and therefore insufficient work piece surface finishes and part accuracies. Also, the holder assembly is unbalanced by nature, causing companies to reduce their feeds and speeds – essentially giving away potential productivity.

HAIMER responded to this problem by inventing Safe-Lock™. Safe-Lock™ is an EDM form in a shrink fit holder so that when the operator shrinks the holder to insert a cutting tool, it engages the Safe-Lock™ form which includes the grooves on the back end of the cutting tool and a matching EDM form in the holder in the rear of the bore. With about 20 licensed cutting tool manufacturers providing the Safe-Lock™ grooves on the back of their cutting tools as a standard, this feature combined with HAIMER tool holders' runout accuracy, leads to low vibration and efficient machining. HAIMER Safe-Lock™ provides, in addition to the pull out security, a very high runout accuracy of < 0.003 mm. Only Safe-Lock™ allows a maximum metal removal rate combined with absolute process reliability and precision. Due to the increased cutting depths and feeds, the metal removal rate can be increased by up to 100%, and to a similar degree tool wear decreases due to the excellent runout and balance characteristics.

Watch now: Learn more about this innovative new solution from Brendt Holden, Haimer USA's President in this episode of *MSC's Tooling Up*.

While Safe-Lock™ was created in response to the issues heavy-duty machining had to face daily, Safe-Lock™ initially made a name for the aerospace and energy industries. However, cost and time savings are not solely restricted to typical aerospace applications and have also been found in typical milling applications. In particular, the increase in customers utilizing the modern high-efficiency dynamic milling strategies available from the CAM software companies, have found Safe-Lock™ to be an absolute necessity.

With Safe-Lock™, machinists experience 100% cutting tool security and highly accurate clamping, due

to a form fit clamping combined with an accurate friction fit of shrink fit or high precision collet chuck technologies with Safe-Lock™. Also, there is no loss of accuracy, no tool pull out, no spinning of the tool, and no damages on work piece or machine. Increase your production's productivity and quality with the HAIMER Safe-Lock™.

For more information about this technology, please contact Haimer USA at 630-833-1500 or haimer@haimer-usa.com.

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